Order No.: 84400

QUANTUM SPORT

FORWARD / BRAKE
14 - 36 Turns
80 Amps

Order No.: 84500

QUANTUM SUPER SPORT

FORWARD / BRAKE
12 - 36 Turns
115 Amps

Order No.: 84600

QUANTUM PRO SPORT

FORWARD / BRAKE
Over 7 turns
155 Amps

USER GUIDE

ra00131

LRP ELECTRONIC

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Dear customer,

Congratulations on choosing one of the world's finest electronic speed controls. We have incorporated the latest digital technology in your Quantum Sport series speed control in order to provide maximum performance and reliability.

The following features give your new speed control the crucial advantage:

- Ultra High Performance using the latest SMD-MOS FETs
- Super-light for improved chassis handling
- Small in size, fits anywhere + Plug-in and drive
- Short protection and safety of full warranty
- Extended run-time
- Extra strong Brake-Power
- Adjustable Power-Control (APC)

SPECIFICATION

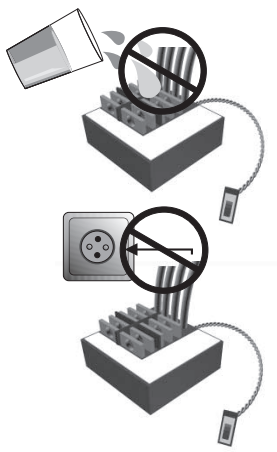
	Quantum Sport	Quantum Super Sport	Quantum Pro Sport
Voltage range / No. of cells	4.8-9.6 V / 4-8	4.8-9.6 V / 4-8	4.8-9.6 V / 4-8
Internal resistance	0.0015 Ω	0.00098 Ω	0.00073 Ω
Momentary load (1 sec)*	80 A	115 A	155 A
Brief load (30 sec)	40 A	60 A	80 A
Continuous load (5 min)	30 A	40 A	55 A
Recommended motor	14-36 turns	12-36 turns	Over 7 turns
Receiver voltage	5.0 V	5.0 V	5.0 V
Max. receiver current (30 sec)	2.0 A	2.0 A	2.0 A
Continuous receiver current (5 min)	1.2 A	1.2 A	1.2 A

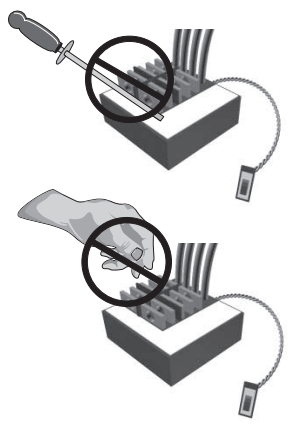
	Quantum Sport	Quantum Super Sport	Quantum Pro Sport
Pulse frequency	2100 Hz	2300 Hz	2500 Hz
Adjustable Power Control (APC)	yes	yes	yes
Protective functions	yes	yes	yes
Standard connector	yes	yes	yes
Set-up procedure	Digital/push-button	Digital/push-button	Digital/push-button
Battery recharge during braking	yes	yes	yes
Power-on pulse suppression	yes	yes	yes
Weight (excl. cables)	15.0 g	15.0 g	15.0 g
Case size (mm)	25.4x23.1x16	25.4x23.1x16	25.4x23.1x16

* The "Momentary load (1 sec)" figure corresponds to US manufacturers' specifications: „ Continuous current at the temperature of 25°C ".

WARNING NOTES

- ***Important***: never leave your RC model unattended when the battery is connected. If a fault should occur the result might be a fire in the model which could destroy anything else in the vicinity.
- The speed control and other electronic components must **never be allowed to contact water.** Avoid operating the unit in rain. If you are obliged to run in wet conditions, domestic paper towels provide the best protection.
- If the motor is connected to the speed control you must not run the motor by connecting a separate battery. This will wreck the unit and invalidate the guarantee.
- Do not cut off the original plug, as this invalidates the guarantee.
- Take care to avoid incorrect connections and reverse polarity as this will also cause damage to the unit. If you prefer different connectors, fit a polarised connector system (plugs / sockets) such as the LRP Hi-Amp (No. 6280); this does not invalidate your guarantee.
- Never allow the output stages (FETs) to contact any metal object - short-circuit hazard.
- Do not wrap your speed controller in foil; it is important to provide a free flow of cooling air over it.
- All cables and connections should be well insulated; short circuits can easily wreck the controller.
- Never alter the polarity of the receiver plug.
- If you use **more than 6 cells** in the drive battery, the motor limit rises by 2 turns for each additional cell.





INSTALLATION TIPS

- Mount the speed control in the model using the double-sided foam tape supplied.
- Provide plenty of cooling openings in the bodywork; this increases the performance and extends the life of all electronic components.
- Install the speed control in a location where it is protected from crash damage.
- The speed control should be installed in such a way that you have easy access to all connectors and the set-up button.
- Ensure that there is an adequate distance (approx. 3 cm) between the speed control and power cables and the receiver or receiver aerial. Avoid direct contact between all power system components and the receiver or aerial, as this can cause interference. If you encounter interference problems, re-position the components in the model.
- The aerial should be run vertically up and away from the receiver. Avoid contact with any parts made of carbon fibre or metal. If the aerial is too long, don't coil up the excess length. It is better to cut it down to a length of about 35 cm. See also the instructions supplied with your radio control system.

- **IMPORTANT**:
  The heat-sink improves and safeguards the performance capacity of your Quantum speed control when used close to its specified limits. Use only the genuine LRP Quantum Sport series heat-sink, Order No. 81456

INSTALLATION

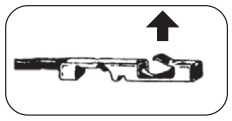
- First attach the heat-sinks (supplied) to the speed control, as described under "Installation tips".

- Solder the suppressor capacitors to the motor.
- Remove the motor pinion, or ensure in some other way that the wheels of the model can rotate freely.

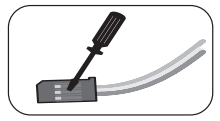
- Install the speed control in the model.
- Connect the speed control to the receiver (channel 2).
- Check that the switch is set to "OFF".
- Connect the speed control to the motor. Note the colour code: yellow wire positive, blue wire negative.
- If you are using a servo with an external FET lead, solder this in place (Quantum Pro-Sport only).
- Check all the wiring and connections before you connect the speed control to a drive battery. Caution: incorrect polarity will wreck your speed control.
- The speed control is now ready to be set-up (see back page).

CONNECTIONS

- **Graupner, Ko-Propo, Futaba, Hitec and LRP Phaser receivers**:
  The LRP speed control is fitted with an LRP Multi-Con receiver lead which fits any of the above receivers directly.
- **Sanwa receivers**:
  Remove the black plastic moulding from the receiver cable and replace it with the plastic moulding supplied (inscribed "**AIR**") as follows:
- **Replacing the plastic plug moulding**:
  Press in the metal lugs of the connector pins using a ball-point pen to disengage them; the wires can then be withdrawn from the plastic housing. Check the polarity using the table below, and slip the pins into the new plastic moulding until they snap into place.



Bend the metal lugs up again. Push the plug into the new plastic moulding.

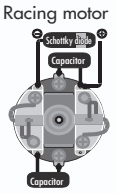


Check correct polarity carefully if changing connectors:

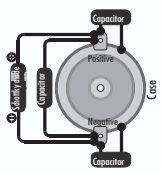
Receiver	Futaba	Graupner	Acoms	Sanwa
Signal wire	white	orange	yellow	yellow
Positive wire	red	red	red	red
Negative wire	black	brown	black	black

MOTOR SUPPRESSION:

Racing motor



Mabuchi motor



The Schottky diode improves the efficiency of the speed control / motor combination and provides extra protection to the brake FETs. Solder the diode in place as shown in the illustration. The white ring must always face the positive motor terminal.

Caution: never use Schottky diodes in conjunction with a forward/ reverse speed control; they are for forward/brake units only!

Schottky-diode:

SET-UP PROCEDURE

In set-up mode the Quantum Sport-series speed control stores every step when you press the Set-up button. All the settings are stored in the unit even when the speed control is subsequently disconnected from the battery.
Start with the transmitter set-up procedure:

TRANSMITTER SETTINGS:

Set the basic functions on your transmitter as follows (if present):

High ATV, EPA	(throttle travel)	- maximum
Low ATV, EPA, ATL	(brake travel)	- maximum
EXP, EXPO	(exponential)	- start with 0
SUB trim	(neutral trim)	- centre
TH trim, coast brake		- centre
Throttle reverse	(servo reverse)	- any setting; must not be changed after completion of set-up procedure.

Asymmetrical stick travel is possible (2/3 throttle - 1/3 brake)
If your transmitter does not feature these set-up functions, it is already in "basic set-up" mode.

- Check that the speed control is not connected to the drive battery, and is switched off.
- Remove the motor pinion, or ensure in some other way that the wheels of the model are free to rotate.
- Switch the transmitter on.
- Set the transmitter throttle stick to neutral.

- Connect the speed control to the battery and swith the speed control on.
- Hold the set-up button pressed in for at least 3 seconds using the plastic screwdriver supplied.

- The set-up LED flashes green and indicates that you are in set-up mode.

- Leave the throttle stick at neutral and press the set-up button.
- The neutral setting is now stored.
- Move the transmitter stick to full-throttle and press the set-up button with the stick still in this position.
- The full-throttle setting is now stored.
- Move the transmitter stick to full brake and press the set-up button with the stick still in this position.

- The set-up LED now glows green constantly.
- Your Quantum Sport series speed control is now completely set-up and ready to run.

- If you make a mistake during the set-up procedure, don't worry: disconnect the battery for about 10 seconds and start again from the first step.
- At the end of each run switch the speed control off, disconnect the battery, and only then switch off the transmitter. At the start of each run switch on the transmitter first, then connect the drive battery, and finally switch the speed control on.

CHECKING THE FUNCTIONS:

You can check the following functions by watching the reaction of the LED:

FUNCTION	STATE	LED GLOWS
Neutral		dull green
Forward	part-load	bright green
Forward	full-throttle	off
Brake	part-load	bright green
Brake	full brake	off
Temperature protection	active	flashes bright green

REPAIR PROCEDURES/WARRANTY

In case of problems first check the trouble shooting guide or contact your hobby shop or ***LRP-importer***. In case of damage, repair fees are normally far below the recommended retail price of a new unit. **Hobby shops are not authorized to replace speed controls thought to be defective.**

Warranty can only be accepted if it is claimed by the customer on the warranty sheet and the control sheet and the original sales receipt are included.

For quick repair and return we definitely need your address, detailed description of the malfunction and the original sales receipt. Repair may be refused without sales receipt.

To guarantee a proper repair, cut off or worn receiver plugs, wires and switches will be replaced and charged in any case. Any speed control treated severely with silicone or anything similar inside, might not be repairable.

Speed controls sent in for repair that operate perfect normally will be charged with a service fee. Therefor first check with the trouble shooting guide.

LRP guarantees this speed control to be free from defects in materials or workmanship for 90 days from the original date of purchase verified by sales receipt.
This warranty doesn't cover: suitability for specific operation, incorrect installation, components worn by use, application of reverse or improper voltage, shipping, tampering, misuse like any soldering inside the unit, poor installation, replacing of wires on the board, connection to electrical components not mentioned in the instructions, mechanical damage, immersion of water and cutting off the original wires, plugs, connectors and switches.

Our warranty liability shall be limited to repairing the unit to our original specifications. Because we have no control over the installation or use of this product, in no case shall our liability exceed the original cost of this unit. We can't accept any liability for any damage resulting from using this product. By the act of installing or operation this speed control, the user accepts all resulting liability.

DESCRIPTION OF FEATURES

Ultra High Performance using the latest SMD-MOS FETs
The internal resistance of these new FET transistors is about 2/3 lower.
Extended run-time
The lower internal resistance extends running times.
Ultra-powerful braking effect
The Quantum Sport series features an ultra-powerful fully proportional EMF brake which is nevertheless easy to control on slippery surfaces. Energy is charged back into the drive battery every time you apply the brake.
Variable traction aid (APC)
Cars fitted with powerful "tuning" motors can easily run out of control when accelerating on slippery tracks. LRP's unique APC variable traction aid effectively prevents unwanted skidding and improves the car's control on every surface.
SETTINGS:

Maximum power	**>Rotate control pot to right-hand stop (plus). At the maximum APC setting the unit's overload protection may be triggered, depending on the motor in use, and in this case your speed control will switch off prematurely. If this should happen, turn the control pot to the left by about 1/3 turn.**
Slippery surfaces	**>If your car spins, turn the control pot to the left (minus) until you have full control of your car when accelerating.**
Maximum APC setting	**>If you select this setting to cope with an extremely slippery surface, remember to turn the control pot back to the right-hand stop at the end of the session, so that you can start with maximum power on the next track.**

The APC settings have no effect on the car's maximum speed.

Short protection and safety of full warranty
The Quantum speed control's integral Multi-Protection software provides a unique level of protection against short circuit (motor), overload and overheating. If any of these overload situations occurs, the motor function is switched off to protect the circuit, although the steering function is maintained. ***The bright red / green LED flashes to indicate an overload situation.***
Allow the speed control to cool down, and the throttle function will be switched on again automatically.
Check for the cause of the overload: is the motor too powerful? Is the motor pinion too large? Is the power train stiff? Are you constantly switching from full power forward to full power in brake?
Small in size, fits anywhere + Plug-in and drive
The small size of Quantum speed controls allows them to be installed anywhere in the model. The factory-fitted standard connectors provide an easy means of connecting it to battery and motor.
Super-light for improved chassis handling
The light weight of the Quantum speed control allows you to lower your model's Centre of Gravity for improved roadholding.

TROUBLE-SHOOTING GUIDE

Symptom	Cause	Remedy
Servo works; no throttle function	Set-up / basic settings problem	Repeat basic speed control set-up procedure from start; to store the function correctly you must hold stick in full-throttle position while you press the set-up button. Note also that all transmitter functions must be set as described in the instructions.
	Speed control connected to wrong receiver channel	Speed control must be connected to Ch. 2; check polarity of receiver lead
	Motor defective	Fit new motor
	Motor brushes stuck	Check that carbon brushes are free to move
	Power pot turned too far to left	Rotate Power pot to right
	Wiring problem	Check cables and connectors
	Speed control defective	Send unit in for repair
No servo or motor function	Receiver plug incorrectly wired	Check polarity of receiver plug
	Crystal faulty Receiver faulty Transmitter faulty	Replace components one by one to locate fault
	Speed control damp, protective circuit tripped	Switch off immediately, allow speed control to dry out
	Receiver power supply circuit faulty	Check BEC output voltage, or send unit in for repair
Motor runs in reverse when you open the throttle	Motor connected incorrectly	Check motor connections (+ is red or yellow)
No brake function	Set-up / basic settings problem	Repeat basic speed control set-up procedure from start; see also „No motor function" point.
	Speed control faulty	Send unit in for repair
Insufficient brake power	Set-up / basic settings problem	Repeat basic speed control set-up procedure (see above). Reset Low ATV, EPA, ATL on transmitter to maximum
	Motor pinion / reduction ratio too large	Fit smaller motor pinion
Insufficient top speed	Set-up / basic settings problem Transmitter has been adjusted after initial speed control set-up	Repeat basic speed control set-up procedure from start; see also „No motor function" point.
Poor acceleration	Power pot turned too far to left	Rotate Power pot to right
Speed control overheats or often switches off	Inadequate cooling	Cut cooling openings in bodywork
	Motor too powerful, or input voltage too high	Use less powerful motor, or battery with lower voltage / fewer cells
	Motor pinion / reduction ratio too large	Fit smaller motor pinion
	Car drive / bearing system problem	Check or replace components
	Model run too often without cooling period	Allow speed control to cool off after each full run
Motor does not stop; continues running slowly	Damp in speed control	Disconnect battery immediately. Dry speed control with heat-gun, try again after 2 days
	Set-up / basic settings problem	Repeat basic speed control set-up procedure
	Speed control faulty	Send unit in for repair
Radio interference	Motor inadequately suppressed	Solder capacitors to motor
	Receiver or aerial too close to power cables, motor, drive battery or speed control. Receiver aerial too long or too short	See „Installation"
	Receiver faulty, too sensitive Transmitter faulty Transmitter output power too low Servo problem	Replace components one by one to locate fault Use original crystals only
	KO-FET servo without choke	Solder choke (supplied with servo) in place
	Poor battery connection	Check connectors
	Transmitter battery / cells flat	Replace dry cells, recharge NC pack
	Transmitter aerial too short	Extend transmitter aerial fully
Imprecise, non-linear control characteristics	Transmitter battery / cells flat	Check transmitter battery regularly
	Transmitter or transmitter „ car program" has been changed	Repeat basic speed control set-up procedure

WHAT SHALL I DO?

- Package your Speed-Control carefully.
- Send parcel to your national distributor.
- Distributor repairs/replaces the Speed Control.
- Shipment back to you usually by COD /cash on delivery), but is suject to your distributers general policy.